



# BE28-ATS

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### 1.0 Description

The Be28ATS integrates a 3-Phase Automatic Mains Failure (A.M.F.) module and an Automatic Transfer Switch controller. The Be28ATS provides visual indication by means of LEDs and Display for Voltages, Frequencies, Current, Alarms and status of the contactors. The Be28ATS features programmable parameters and complies with NFP110 CAN/CSA-C282-M89 regulations. It features 7 modes of operation and provides a RS485 interface for remote control & monitoring.

### 2.0 State-of-the-art Innovative features

- operates from -30°C up to 70°C maintaining High luminosity of the display
- basic I/O lines plus 4 additional free programmable inputs and outputs
- monitors alarms and provides MODBUS protocol (Rs485)
- 33 programmable parameters and 40 programmable input/output options
- embedded Troubleshooting procedure; in field calibration
- High performance 3-Phase TRUE-R.M.S. voltage and current measurements
- Uncomparable Quality & Performance

### 3.0 Programmable Inputs

The Be28ATS features one Emergency Input and a programmable inputs that can be configured n.c. or n.o. and work in one of the following modes:

Option	Description of the function	Option	
[ 0 ]	Disables the input	[ 6 ]	Overload Input Shutdown
[ 1 ]	Immediate Stop	[ 7 ]	Remote Generator Test
[ 2 ]	Warning only	[ 8 ]	KG LED Feedback
[ 3 ]	Display Right Pushbutton	[ 9 ]	KM LED Feedback
[ 4 ]	Display Left Pushbutton	[ 10 ]	Mains Simulation
[ 5 ]	Overload Input Warning	[ 11 ]	External TEST LED button

#### **4.0 Programmable Outputs**

Be42 features 3 dedicated outputs able to control the contactor of Mains, the contactor of the Generator and the start of the Engine. The Be42 provides a programmable output able to work in one of the following way:

Option Coding & description		Option coding & description	
[ 0 ]	Output is disabled	[16]	Alarm form Input 2
[ 1 ]	Under Frequency Shutdown	[17]	Alarm form Input 3
[ 2 ]	Over Frequency Shutdown	[18]	Alarm form Input 4
[ 3 ]	Over Current Shutdown	[19]	Presence of Nominal Mains Parameters
[ 4 ]	Over Current Warning	[20]	Presence of Nominal Generator Voltage
[ 5 ]	Overload Warning or Shutdown	[21]	Mains Failure Timing
[ 6 ]	Over Voltage Shutdown	[22]	Mains Restore Timing
[ 7 ]	Under Voltage Shutdown	[23]	BE28ATS in OFF MODE (Status)
[ 8 ]	Alternator Failure Shutdown	[24]	BE28ATS in MANUAL MODE (Status)
[ 9 ]	Low Battery Voltage Warning	[25]	BE28ATS in AUTO MODE (Status)
[10]	High Battery Voltage Warning	[26]	BE28ATS in TEST MODE (Status)
[11]	Emergency Stop Shutdown	[27]	BE28ATS in LOCK MODE (Status)
[12]	Stop Pushbutton Used in AUTO	[28]	KG Status
[13]	Fail To START Shutdown	[29]	KM Status
[14]	Fail To STOP Shutdown	[30]	<b>Horn Output (common alarm)</b>
[15]	Alarm form Input 1		

#### **5.0 Alarm monitoring**

The Be28ATS indicates the following alarm messages:

Message	Description of the Alarm	Message	Description of the Alarm
[Er.01]	Over Frequency Shutdown	[Er.08]	Emergency Shutdown
[Er.04]	Alternator Failure Shutdown	[Er.09]	Emergency Shutdown (Front Panel)
[Er.05]	Overload Warning	[Er. 13]	Battery Voltage Warning
[Er.06]	Under Frequency Shutdown	[InP.1]	Input 1 Shutdown / Warning
[Hi-C]	Over Current Shutdown or Warning	[InP.2]	Input 2 Shutdown / Warning
[Hi-U]	Over Voltage Shutdown	[InP.3]	Input 3 Shutdown / Warning
[Lo-U]	Under Voltage Shutdown	[InP.4]	Input 4 Shutdown / Warning

#### **6.0 Specifications**

- Supply Voltage: 5.5Vdc to 36Vdc
- Dimensions: 224X105X60(mm)
- Weight: 850 gr. Vibration: 40mm/sec.
- Static Outputs: 300mA/100Vdc
- Digital Inputs: -100 / +100Vdc
- Temperature: -30 /+75°C
- Protection: 300mA thermal fuse, Supply current: 5 mA - 80mA .
- Cut-out: 190mm X 93mm, indoor-outdoor operation
- Max Voltage (ac input) 4KV
- Short circuit proof output, negative logic
- Vac accuracy +/- 1% , 32 up to 600Vac
- Humidity: 5% up to 95% non-condensing

General Design: 89/336 EEC, 89/392 EEC, 73/23 EEC, 93/68 EEC, IEC 68-2-6 Certification:

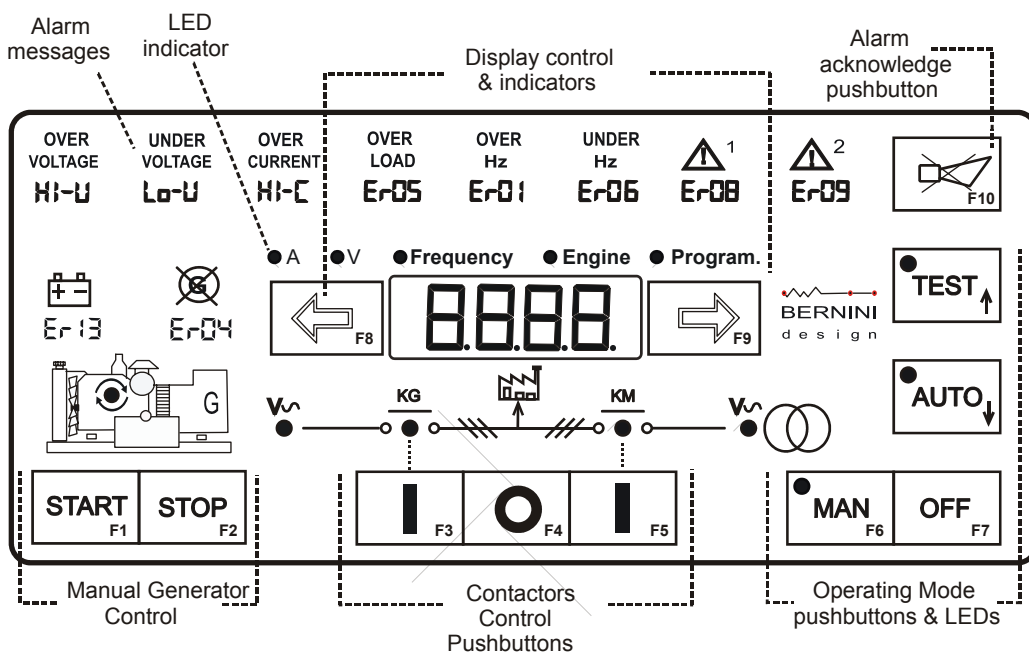
### 7.0 Front Panel View

The front panel features industrial grade Membrane push buttons for the following:

- 2 to control the Genset
- 3 to control the contactors
- 4 to select the operating mode
- 2 to control the display menu
- 1 to silence the Horn

The front panel provides DISPLAY and 12 LED indicators for the following:

- 3 indicate the Operating mode
- 2 indicate the status of Voltage
- 1 indicates if the Engine is running
- 5 indicate the menu of the Display
- 2 indicate the status of the contactors



The Be28ATS uses a high luminosity display to indicate the following:

- **Battery Voltage (up to 36Vdc)**
- **Mains Voltage (up to 600Vac)**
- **Mains Frequency**
- **Generator Voltage & Current**
- **Generator Frequency**
- **Programmable parameters & Settings indication**

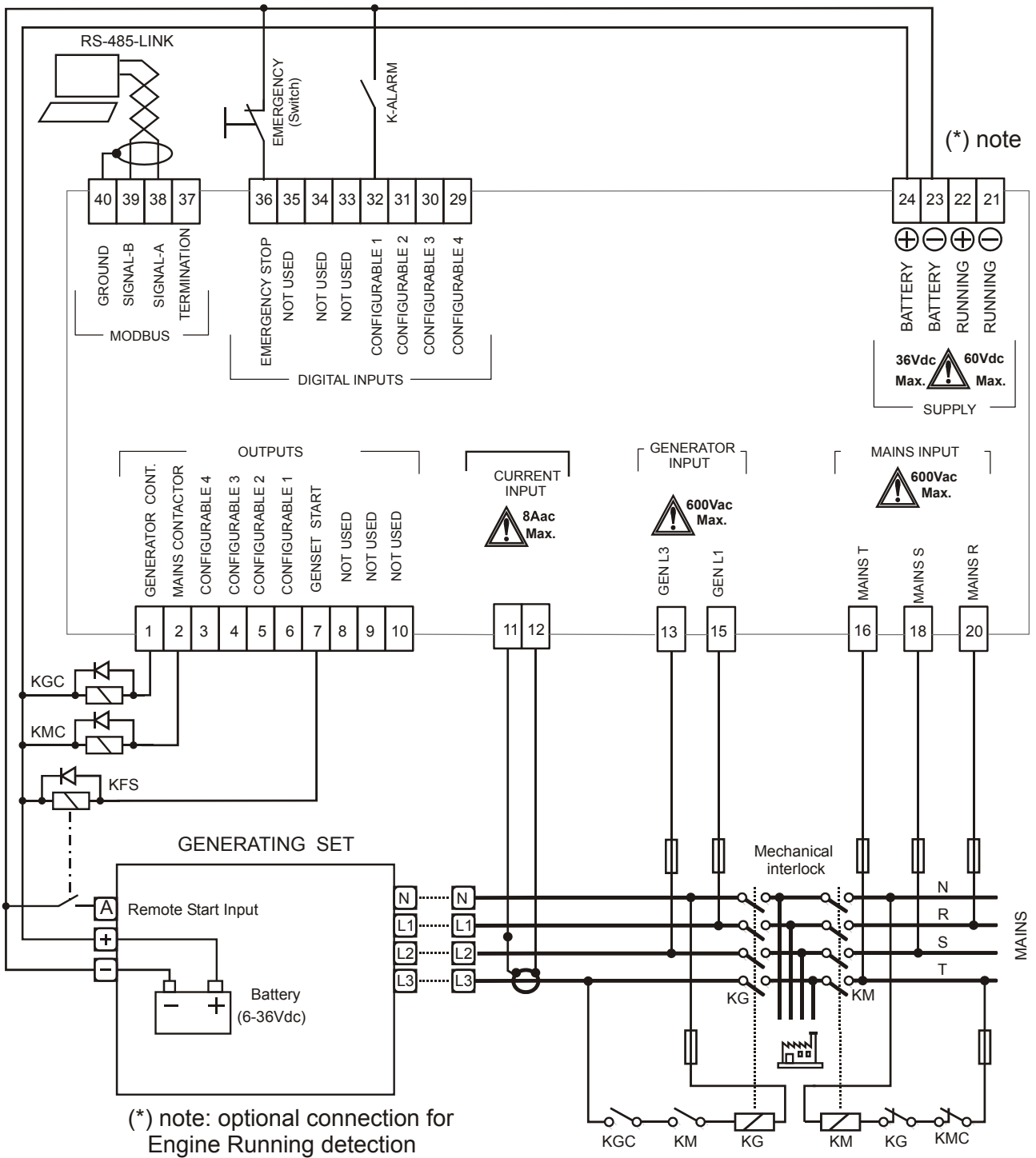
The display indicates the following messages:

Message	Description	Message	Description
[ _ _ _ _ ]	The engine is performing the start. The dashes move continuously.	[ProG]	Program mode
[n-on]	MAINS Simulated. A programmable input simulates the presence of the Mains.	[-CAL]	Calibration mode
[StoP]	The Be28ATS is stopping the engine	[ - - - - ]	The measurement is out of range
		[tEst]	Troubleshooting mode

**8.0 Serial interface**

The Be-One features an optional RS485 interface. The protocol MODBUS provides an easy way to interface with other equipments. A PC software running with any operating system is available. Adapter for TCP-IP and Rs232 or Modem interface are available as option.

**9.0 Application wiring diagram**

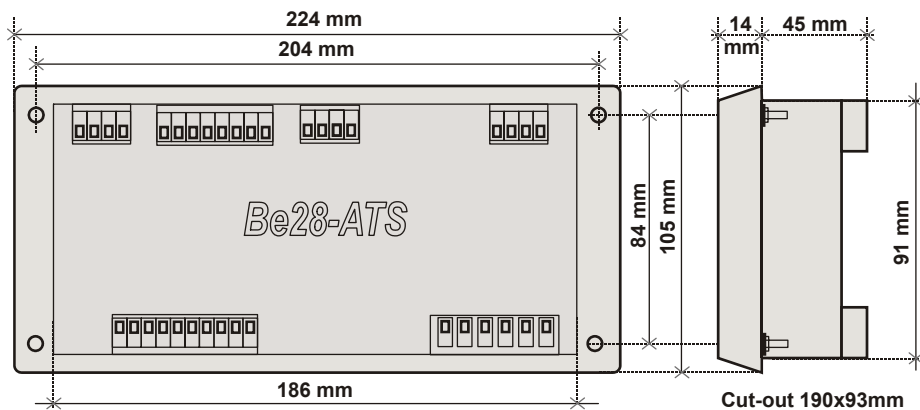


**10.0 Be28ATS Programmable Parameters List (\*)**

Code	Description	Code	Description	Code	Description	
P.0	Mains Breaker control	P.11	G Under Frequency	P.20	Engine Cooling time	
P.1	Mains Failure time		Under Frequency delay	P.21	Stop timing	
P.2	Mains Restore time	P.12	G Over Frequency	P.22	Emergency contact	
P.3	Contactors changeover		Over Frequency delay	P.23	NFPA - 110 mode	
P.4	Mains Under voltage	P.13	Warning current limit	P.24	RS485 Node Address	
P.5	Over voltage limit		Warning current delay	P.25	Horn timeout	
P.6	Mains Under Hz	P.14	Over current shut down	[InP.1]	Input 1 /Mode	
P.7	Mains Over Hz		Over current delay	..up to	.... up to	
P.8	Phase Selection	P.15	Alternator failure options	[InP.4]	Input 4 / Mode	
P.9	G Under voltage	P.16	Alternator number of Poles	[Out.1]	Output 1	
	Under voltage delay	P.17	Contactor Control		.....up to	
P.10	G Over voltage	P.18	CT size (/5Aac).		[Out.4]	Output 4
	Over voltage delay	P.19	Engine Warm up time			

(\*)To find out more details we recommend that you consult the user manual

**11.0 Be28ATS rear view and dimensions**



Bernini Design reserve the right to change specification without notice